CLAIMS

We claim:

1. A method of decontaminating a structure contaminated by pathogenic microorganisms comprising the steps of:

(a) sealing a contaminated structure sufficiently to enable retention of a gas,

(b) introducing methyl bromide gas into sealed contaminated structure to a concentration of methyl bromide in an amount sufficient to deactivate said pathogenic microorganisms and disable germination of pathogenic bacteria spores, and

(c) maintaining said sealed contaminated structure with said concentration of methyl bromide at a sufficient temperature for a sufficient period of time, and resulting in deactivating said pathogenic microorganisms and disabling germination of said pathogenic bacteria spores associated with said contaminated structure.

2. The method of decontaminating a structure of Claim 1 further comprising the step of unsealing and aerating decontaminated structure to release said methyl bromide gas for reuse of said structure.

3. The method of decontaminating a structure of Claim 1, wherein said pathogenic bacteria and spores of said pathogenic bacteria comprise *bacillus anthracis* and its spores, *B. subtilis var niger* and its spores, and *B. stearothermophilus* and its spores.

4. The method of decontaminating a structure of Claim 1, wherein said structure comprises a room, a residential or commercial building, a mobile home, a vehicle, a train, a boat, and an airplane.

5. The method of decontaminating a structure of Claim 1, wherein said sufficient temperature is greater than 20°C.

6. The method of decontaminating a structure of Claim 5, wherein said sufficient temperature is greater than 25°C.

7. The method of decontaminating a structure of Claim 5, wherein said sufficient temperature is approximately between 25°C and 40°C.

8. The method of decontaminating a structure of Claim 6, wherein said concentration of methyl bromide is about 80 mg/l and above.

9. The method of decontaminating a structure of claim 1, wherein said concentration of methyl bromide is about 250 mg/l and above.

10. The method of decontaminating a structure of claim 1, wherein said concentration is a mean concentration of approximately 303 mg/l during the decontamination.

11. The method of decontaminating a structure of Claim 8, wherein said sufficient time is greater than 30 hours.

12. The method of decontaminating a structure of claim 9, wherein said sufficient time is approximately 48 hours.

13. The method of decontaminating a structure of Claim 1 further comprising introducing an additive into said sealed contaminated structure.

14. The method of decontaminating a structure of Claim 13, wherein said additive is chloropicrin.

15. A method of decontaminating an article contaminated by pathogenic microorganisms comprising the steps of:

(a) placing said contaminated article in a closed chamber, and sealing said chamber,

(b) introducing methyl bromide gas into sealed chamber to a concentration of methyl bromide sufficient to deactivate said pathogenic microorganisms and disabling germination of said pathogenic bacteria spores, and

(c) maintaining said concentration of methyl bromide in said sealed chamber at a sufficient temperature for a sufficient period of time, and resulting in deactivating said pathogenic microorganisms and disabling germination of said pathogenic bacteria spores associated with said contaminated article.

16. The method of decontaminating an article of Claim 15 further comprising the step of releasing said methyl bromide gas from said chamber for reuse of said article.

17. The method of decontaminating an article of Claim 15, wherein said pathogenic microorganisms and pathogenic bacteria spores comprise *bacillus anthracis* and its spores, *B. subtilis var niger* and its spores, and *B. stearothermophilus* and its spores.

18. The method of decontaminating an article of Claim 15, wherein said sufficient temperature is greater than 20°C.

19. The method of decontaminating an article of Claim 18, wherein said sufficient temperature is greater than 25°C.

20. The method of decontaminating an article of Claim 15, wherein said sufficient temperature is approximately between 25°C and 40°C.

21. The method of decontaminating an article of Claim 19, wherein said concentration of methyl bromide is about 80 mg/l and above.

22. The method of decontaminating an article of claim 21, wherein said concentration of methyl bromide is about 250 mg/l and above.

23. The method of decontaminating an article of claim 15, wherein said concentration is a mean concentration of approximately 303 mg/l during the decontamination.

24. The method of decontaminating an article of Claim 21, wherein said sufficient time is greater than 30 hours.

25. The method of decontaminating an article of claim 23, wherein said sufficient time is approximately 48 hours.

26. A method of decontaminating a structure contaminated by pathogenic microorganisms comprising the steps of:

(a) sealing a contaminated structure sufficiently to enable retention of a gas,

(b) introducing methyl bromide gas into sealed contaminated structure to achieve a concentration of methyl bromide about 200 mg/l and above, and

(c) maintaining said sealed contaminated structure with said concentration of methyl bromide at a temperature greater than 25°C for a sufficient period of time, and resulting in deactivating said pathogenic microorganisms and disabling germination of said pathogenic bacteria spores associated with said contaminated structure.

27. The method of decontaminating a structure of Claim 26, wherein said sufficient time is greater than 30 hours.

28. A method of decontaminating a structure contaminated by pathogenic microorganisms comprising the steps of:

(a) substantially sealing a contaminated structure sufficiently to enable retention of a predetermined concentration of methyl bromide gas,

(b) introducing methyl bromide gas into the substantially sealed contaminated structure to a concentration of methyl bromide in an amount sufficient to deactivate said pathogenic microorganisms and disable germination of pathogenic bacteria spores, and

(c) maintaining said substantially sealed contaminated structure with said concentration of methyl bromide for a sufficient period of time to deactivate said pathogenic microorganisms and to disable germination of said pathogenic bacteria spores associated with said contaminated structure.

29. The method of claim 28, wherein the concentration of methyl bromide gas and period of time are inversely varied while providing sufficient gas to disable germination of said pathogenic bacteria spores associated with said contaminated structure.

30. The method of claim 29, wherein a baseline concentration of methyl bromide gas is approximately 80mg/liter, and a baseline period of time is 48 hours.

31. The method of claim 28, wherein the ambient humidity within the contaminated structure is approximately 21%

32. The method of claim 28, wherein the ambient humidity within the contaminated structure is between 21% and 100%.

33. The method of claim 28, wherein the concentration of methyl bromide gas is approximately 80ml/liter, and the sufficient period of time is approximately 48 hours.

34. The method of claim 28, wherein the concentration of methyl bromide gas is approximately 60ml/liter, and the sufficient period of time is approximately 72 hours.

35. The method of claim 28, wherein the concentration of methyl bromide gas is approximately 40ml/liter, and the sufficient period of time is approximately 96 hours.

36. The method of claim 28, wherein the concentration of methyl bromide gas is approximately 160ml/liter, and the sufficient period of time is approximately 24 hours.

37. The method of claim 33, wherein the ambient humidity within the contaminated structure is between 21% and 100%.

38. A method of decontaminating a structure contaminated by pathogenic microorganisms and associated spores comprising the steps of:

(a) substantially sealing a contaminated structure sufficiently to enable retention of a predetermined concentration of methyl bromide gas,

(b) introducing methyl bromide gas into the substantially sealed contaminated structure to a concentration of methyl bromide in an amount sufficient to deactivate said pathogenic microorganisms and disable germination of pathogenic bacteria spores, and

(c) maintaining said substantially sealed contaminated structure with said concentration of methyl bromide for a sufficient period of time to deactivate said pathogenic microorganisms and to disable germination of said pathogenic bacteria spores associated with said contaminated structure.

wherein, temperature is kept approximately between 28°C and 38°C, the concentration of methyl bromide is approximately 250 to 350 mg/l, and an exposure time is approximately 48 hours.

39. A method of decontaminating a structure contaminated by pathogenic microorganisms and associated spores comprising the steps of:

(a) substantially sealing a contaminated structure sufficiently to enable retention of a predetermined concentration of methyl bromide gas,

(b) introducing methyl bromide gas into the substantially sealed contaminated structure to a concentration of methyl bromide in an amount sufficient to deactivate said pathogenic microorganisms and disable germination of pathogenic bacteria spores, and

(c) maintaining said substantially sealed contaminated structure with said concentration of methyl bromide for a sufficient period of time to deactivate said pathogenic microorganisms and to disable germination of said pathogenic bacteria spores associated with said contaminated structure.

wherein temperature is kept at approximately 37°C, the concentration of methyl bromide is approximately 80 mg/l and above, and an exposure time is approximately 48 hours,